The Climate & Ecological crisis –

How medicines optimisation teams can respond to this health emergency.





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THE CONFERENCE Y

TOGETHER FOR OUR PLANET

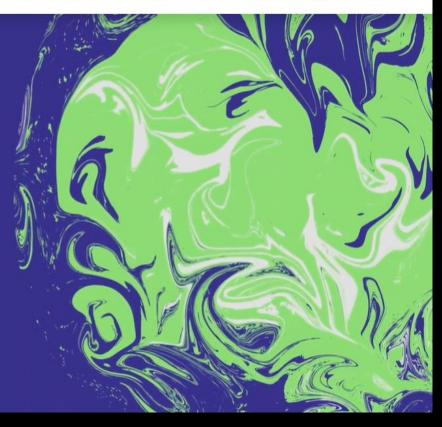
EN / IT

31 OCT - 12 NOV 2021 GLASGOW

UK PRESIDENCY Y

COP26 GOALS Y





We've known about Climate Change for a long time

## COAL CONSUMPTION AFFECT-ING CLIMATE.

The furnaces of the world are now burning about 2,000,000,000 tons of coal a year. When this is burned, uniting with oxygen, it adds about 7,000,000,000 tons of carbon dioxide to the atmosphere yearly. This tends to make the air a more effective blanket for the earth and to raise its temperature. The effect may be considerable in a few centuries.

Published Aug. 14, 1912.

HE RODNEY AND OTAMAT

The Climate Crisis – established science

'Coal Consumption Affecting Climate' Article published

US President advised: "Pollutants have altered on a global scale the CO<sub>2</sub> content of the air with <u>effects</u> <u>'deleterious' to</u> <u>human beings."</u> 1912 1959

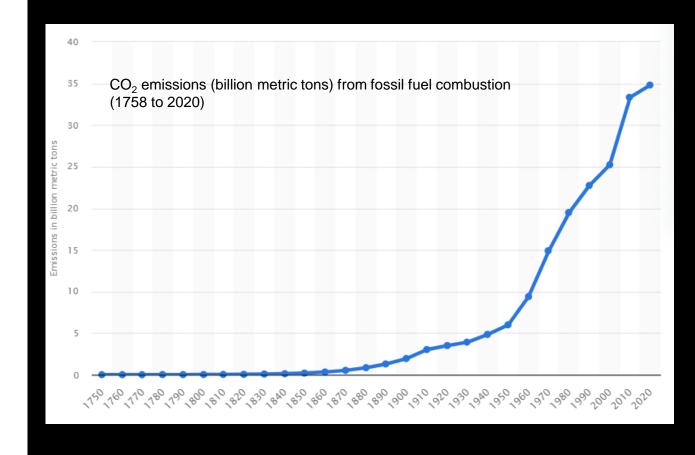
1965 1981

American Petroleum Institute warned: <u>Increased CO<sub>2</sub> will</u> <u>cause polar ice-caps</u> <u>to melt</u> & flood New York

Exon warned: "CO<sub>2</sub> emissions will produce effects which <u>will be catastrophic</u> <u>for Earth's</u> <u>population."</u>

https://www.theguardian.com/environment/ng-interactive/2019/oct/09/half-century-dither-denial-climate-crisis-timeline

## Emissions have continued to rise



https://www.statista.com/statistics/264699/worldwide-co2-emissions/

# 2015 Paris Accord

- Adopted by 196 Parties
- Goal: limit global warming to +1.5°C
- Aim: climate neutral world by mid-century

We are now at +1.2C

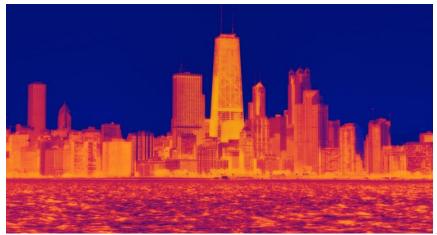


#### "For humanity, for the planet, for life."

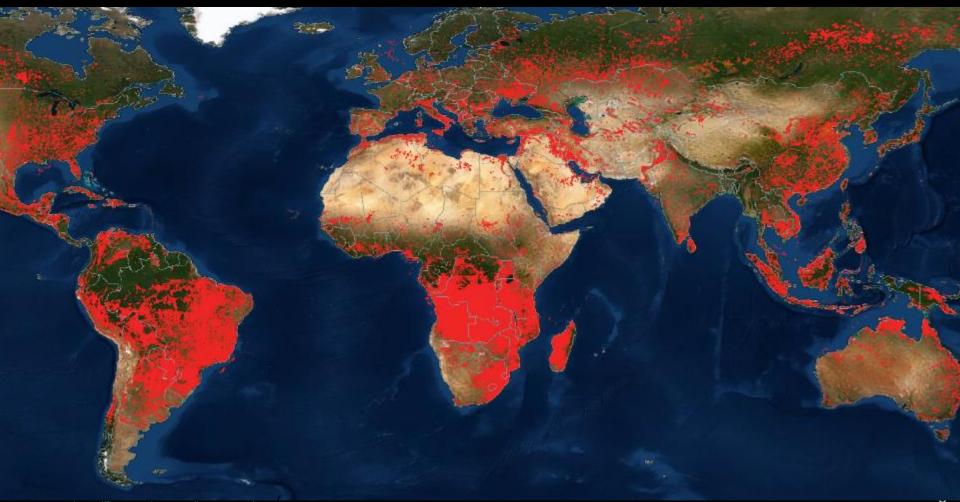
### Heat & Drought

- Climate change is altering the frequency, intensity and duration of heatwaves
- Mortality comes about from heat exhaustion & heat stroke / increases with each degree of warming
- 1.5°C: 350 million+ people exposed to deadly heat, particularly in cities
- Food-system failures & Drought
- Increased likelihood of sustained conflict e.g, Syria

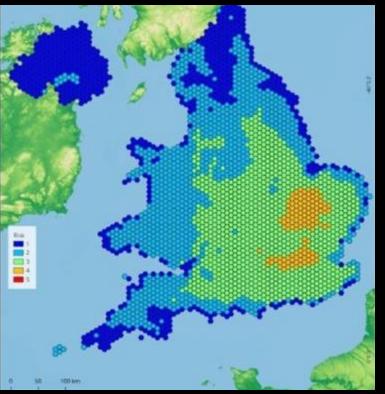




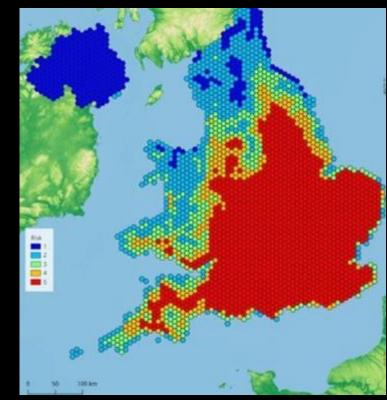
https://www.ipcc.ch/sr15/chapter/chapter-3/











https://www.nationaltrust.org.uk/press-release/national-trust-maps-out-climate-threat-to-coast-countryside-and-historic-places

## Air Pollution

Fires contribute toxins & particulate matter

#### Moulds

• Increased fungal spore production

#### Pollen

- Increase in plant size/growth rate
- Increase in pollen production/allergenic proteins

Fossil Fuel Air Pollution

- 6.6m deaths in 2020
- Cardiovascular & respiratory events
- Depression, premature birth, miscarriage



## Storm surges

- Storms will increase in frequency, duration & intensity - cyclones likely in Europe in coming decades
- 7% of hospitals in flood risk zones
- 2021 UK hospitals evacuated due to climate change

## Sea-Level Rise

- More than half population live in 60 km of coastline
- 8 of the world's 10 largest cities near a coast
- Sea-levels could rise up to 2m with projected temperature increases
- Vital infrastructure at risk

Flooding in England: National Assessment of Flood Risk. The Environment Agency https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachmen t\_data/file/292928/geho0609bqds-e-e.pdf



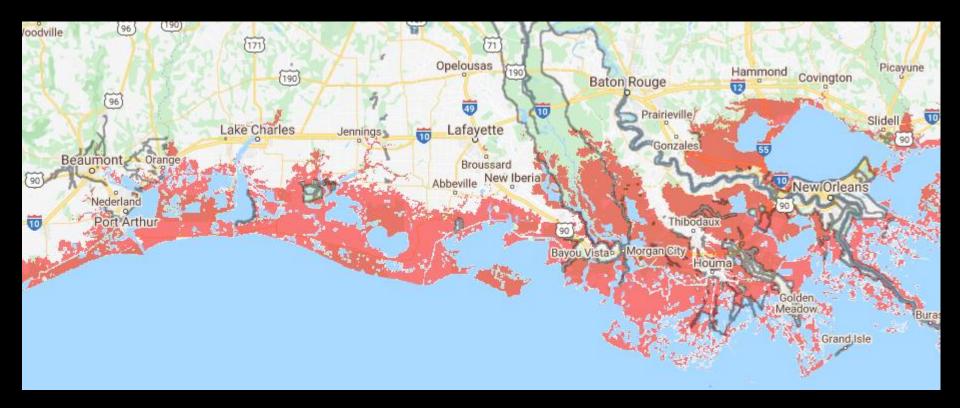
## London – estimated flood risk 2050

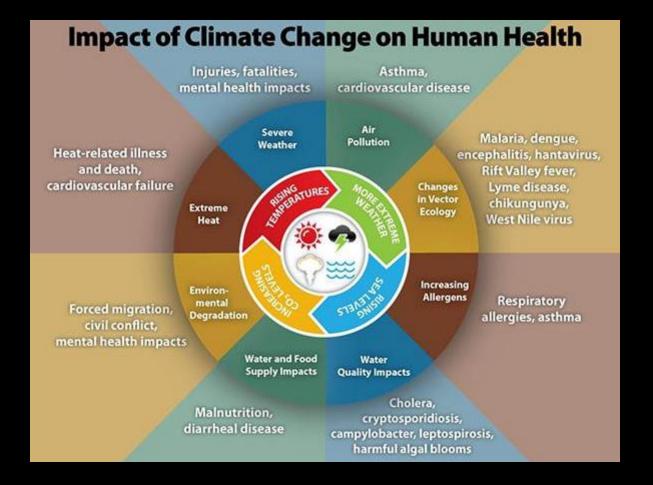


### Belgium, The Netherlands



### Louisana, America





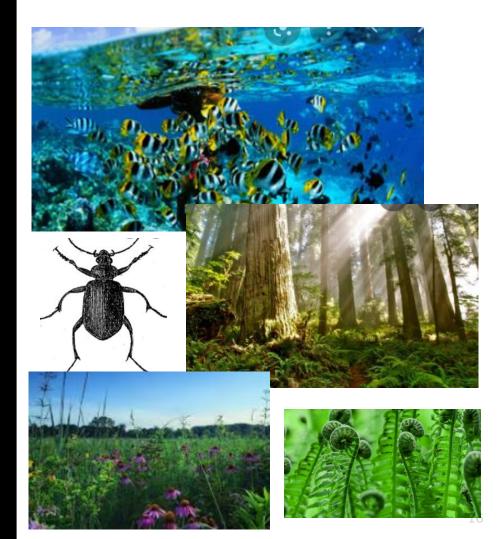
# The Ecological Crisis

Our ecological footprint is altering the planet's land, rivers & oceans

- Half forests cut down
- 50% habitable land converted for agriculture
- 60% rivers dammed
- Biodiversity Indices at critical levels

Affects on:

Nutrition Water purification Spread of infectious diseases Climate change



#### UK government advised to prepare for +4<sup>o</sup>C by 2100

To keep global warming well below 2°C, emissions need to fall 10x faster

#### The world: 4°C warmer No one knows exactly what this world will look like,

but models provide insights into forced human migrations and our future power generation

Greenland Greenland's ke sheet will be melting rapidly

-North Africa/Middle East/

Solar Energy Belt stretches for thousands of kilometers, employing a mixture

Amazon

Patagonia Neted gladers reveala new arable zone, although the

poor sollsneed preparation

Africa

Mostly desert, though

some models show greening of the Sahel

Desert

of photovoltaic and solar thermal

energy. At frequent intervals a

substation sends power north

high voltage direct-current

-

Southern US

#### Arctic passage

With no sealce, this valuable shipping route is open all year, providing transportation links between habitable zones in Canada and Russia

#### Canada Reliable precipitation and examer temperatures provide ideal growing conditions for most of the world's subsistence crops

Southwest US Desertification leads to the last inhabitants of this region migrating north. The Colorado River is a mere trickle. The land is used for solar farming and geothermal energy

> Peru Deglaciation means this area is dry and uninhabitable

#### Western Antarctica Unrecognizable now. Densely populated with high-rise cities

#### Scandinavia/UK/Northern Russia/Greenland Compact high-rise cities would provide shelter for much of the workt's population

Siberia

Reliable precipitation and warmer temperatures provide ideal growing conditions

for most of the world's sub-sistence crops

#### Southern Europe Deserts have encroached on the continent, rivers have dried up, and the Alps are snow-free. Coats and other hardy animals are kept at the tringes.

Southern China Dried rivers and aquifers mean this region has been abandoned. intense monsoons have helped erode the land, leaving a dust bowl

Asia Host of the Himalayan gladers have melted, with repercussions for many of the major rivers in the region. Bangladesh is largely abandoned, as is southindia. Pakistan, and Afghanistan. Solated communities remain in pockets

> Australia In the far north and Tasmania. compact cities house people and crops are grown. The rest of the continent is given to solar energy production and utanium mining for nuclear power

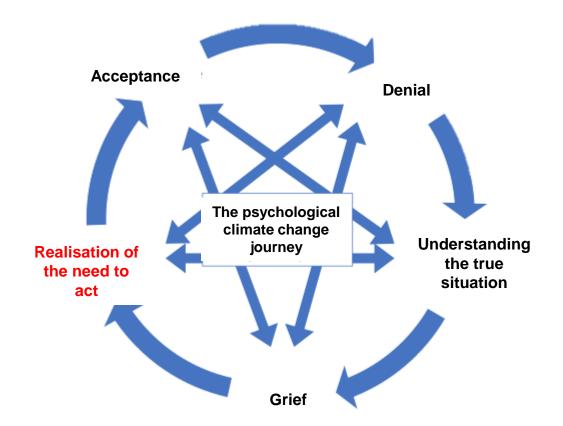
New Zealand Unrecognizable. This densely populated island state has high-rise cities and intensive farming

Polynesia

the sea

Varished benewith

18



#### Diagnosis: Climate & Ecological Emergency

**Presentation:** Septic, acidotic, hypercapnic patient with shockinduced deranged organ function.

**Treatment:** Cease the flow of toxins, restore & regenerate

*"Everyone who works in healthcare has a responsibility to take action on the health emergency posed by climate change."* 

Dr Nick Watts, NHS Chief Sustainability Officer